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ELECTRICAL/MECHANICAL EQUIPMENT DESCRIPTION

No.	Date	Revision	Approved
<p>This drawing subject to conditions in contract. All inventions, ideas, designs and methods herein are reserved to Port Authority and may not be used without it's written consent.</p>			
DiGOSTA/ AVENOSO		AVENOSO	PALANCO
Designed by		Drawn by	Task Leader
<p>Checked by <u>ASB</u></p>			
Date 5 - 16 90		Scale NONE	
Contract Number		Drawing Number	
WTC-499.18		E-28	

POX-1 PROGRAMMABLE SUPPLEMENTARY RELAY MODULE:

POX-1 IS AN OUTPUT CONTROL MODULE THAT CONTAINS 4 CONTROL CIRCUITS WITH RELAY OUTPUT, FORM C CONTACTS, RATED AT 5A, 120 VAC INDUCTION AND 4 SOLID STATE SWITCH OUTPUTS RATED AT 24 VDC AND 50 mA.

TRX-2R ADDRESSABLE INTERFACE MODULE:

THE TRX-2R IS AN ADDRESSABLE INTERFACE MODULE THAT INTERFACES THE DIRECT SHORTING CONTACT DEVICE AND THE ADDRESSABLE INITIATING CIRCUIT. AN ADDITIONAL RELAY WITH FORM C CONTACTS RATED AT 30 VDC 1/2 AMP RESISTIVE IS INCLUDED IN THE TRX-2R. THE TRX-2R IS FIELD PROGRAMMABLE.

EBX-2 AND EDX-2 DOUBLE CARD CAGE BACKBOX AND DOOR:

THE SYSTEM XL3 ENCLOSURE AND DOOR. THE ENCLOSURE SHALL BE PROVIDED WITH A CONTINUOUS HINGED COVER AND A LOCK WITH TEN (10) KEYS.

BKX-1 BATTERY TRAY

BKX-1 IS AN OPTIONAL BATTERY TRAY THAT ALLOWS ADDITIONAL SPACE TO FACILITATE BOTTOM CABINET WIRING.

BTX-2

BTX-2 IS A 12 VOLT 55 AMP/HR BATTERY

CXM-1 (FOR EXISTING CXL PANEL ONLY I)

THE CXM-1 MODULE CONTAINS FOUR MODEMS THAT PROVIDE THE MEANS TO COMMUNICATE WITH ANY FOUR XL3 SYSTEMS. FOUR WIRES ARE USED FOR CLASS A COMMUNICATIONS AND TWO WIRES ARE USED FOR CLASS B COMMUNICATIONS.

ALARM BELL

THE ALARM BELL SHALL BE AS MANUFACTURED BY PYROTRONICS CAT. NO. BDC-10 SUITABLE FOR 24VDC OPERATION.

TROUBLE CHIME

THE VIBRATING TROUBLE CHIME SHALL BE AS MANUFACTURED BY PYROTRONICS CAT. NO. CES-24 SUITABLE FOR 24 VDC OPERATION.

FUSED CUT-OUT

EACH FUSED CUT-OUT BOX SHALL CONSIST OF A TWO POLE SOLID NEUTRAL 30 AMPERES FUSED OUTGO AND SHALL BE SUITABLE FOR 120/208 VOLTS, SINGLE PHASE, 3-WIRE OPERATION.

1. THE MECHANICAL CONTRACT DRAWINGS SHOW GENERALLY THE APPROXIMATE LOCATIONS OF SMOKE DETECTORS TO BE FURNISHED AND INSTALLED UNDER THIS CONTRACT.
2. SMOKE DETECTOR INSTALLATION AND LOCATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
3. DUCT DETECTOR SAMPLING TUBES TO BE FURNISHED AND INSTALLED UNDER THIS CONTRACT SHALL BE SIZED TO FIT EXISTING DUCTS.
4. THE FINAL LOCATION OF ALL DETECTORS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. THE CONTRACTOR SHALL DETERMINE ALL EXISTING DIMENSIONS AT THE REQUIRED LOCATIONS OF NEW DETECTORS AND SHALL INDICATE SUCH DIMENSIONS ON THE SHOP DRAWINGS SUBMITTED FOR APPROVAL.
5. WHERE DETECTORS AND ACCESS DOORS ARE REQUIRED TO BE INSTALLED IN EXISTING INSULATED DUCTWORK, THE CONTRACTOR SHALL UPON COMPLETION OF THE INSTALLATION REPAIR ALL EXISTING ACCESS DOOR BARRIERS AND JACKET IN THE VICINITY TO MEET THE APPROVAL OF THE ENGINEER.
6. REMOVALS:

ALL EXISTING SMOKE DETECTORS LOCATED IN SYSTEMS WHEREIN DETECTORS ARE BEING INSTALLED UNDER THIS CONTRACT, SHALL BE REMOVED

SUCH REMOVALS SHALL BE DONE ONLY AFTER THE NEW INSTALLATION IS COMPLETED, TESTED, AND ACCEPTED BY THE ENGINEER.

WHERE EXISTING DETECTORS ARE COUPLED TO DUCT SAMPLING TUBES, EXISTING SAMPLING TUBES ARE ALSO TO BE REMOVED, AND ALL HOLES IN DUCTWORK PATCHED AIRTIGHT AS REQUIRED.
7. ACCESS DOORS:

12" x 12" ACCESS DOORS SHALL BE INSTALLED IN DUCTWORK ADJACENT TO DUCT DETECTORS TO PERMIT INSPECTION AND MAINTENANCE OF DETECTOR SAMPLING TUBES, EXCEPT WHERE LOCATION IS WITHIN REACH OF AN EXISTING ACCESS DOOR.

Gauges and fabrication methods shall comply with the SHEET METAL AND AIR CONDITIONING CONTRACTOR'S NATIONAL ASSOCIATION, INC. (SMACNA).

ACCESS DOORS IN INSULATED DUCTS SHALL BE DOUBLE PANEL INSULATED TYPE.

ACCESS DOORS IN UNINSULATED DUCTS SHALL BE OF SINGLE PANEL CONSTRUCTION.

ENTIRE PERIMETER OF ACCESS DOOR SHALL HAVE NEOPRENE RUBBER GASKET SUFFICIENT TO PROVIDE AN AIRTIGHT SEAL.

ACCESS DOORS ARE TO BE HINGED, EXCEPT WHERE LIMITED CLEARANCE REQUIRES REMOVABLE ACCESS DOORS.

THE AREA TYPE SMOKE DETECTORS SHALL OPERATE ON THE IONIZATION PRINCIPLE AND SHALL BE PLUG-IN UNITS CONTAINING TWO IONIZATION CHAMBERS REQUIRING NO MORE THAN TWO WIRES TO BE CONNECTED TO MOVING PARTS. EACH SHALL CONTAIN A PLUG-IN BASE WITH A FULGE LIGHT THAT FLASHES ON ALARM. AREA TYPE DETECTORS SHALL BE PYROTRONICS MODEL DI-X3. NO SUBSTITUTIONS WILL BE PERMITTED. THE DI-X3 IS AN ADDRESSABLE INTERFACE DETECTOR THAT IS CONTROLLED BY THE SYSTEM CONTROL PANEL. EACH DETECTOR IS UNIQUELY IDENTIFIABLE AND CAN BE FIELD PROGRAMMED. CALIBRATION, DEVICE IDENTIFICATION AND SENSITIVITY ARE MONITORED BY THE SYSTEM CONTROL PANEL. THE SENSITIVITY IS CONTROLLED BY THE SYSTEM CONTROL PANEL. QUANTITY AS SHOWN ON THE CONTRACT DRAWINGS.

F. THE AREA HIGH VELOCITY TYPE SMOKE DETECTORS SHALL OPERATE ON THE IONIZATION PRINCIPLE AND SHALL BE PLUG-IN UNITS CONTAINING TWO IONIZATION CHAMBERS REQUIRING NO MORE THAN TWO WIRES. IT SHALL HAVE NO MOVING PARTS AND SHALL CONTAIN A PLUG-IN BASE WITH A FULGE LIGHT THAT FLASHES ON ALARM. AREA TYPE DETECTORS SHALL BE PYROTRONICS MODEL DI-X3. NO SUBSTITUTIONS WILL BE PERMITTED. THE DI-X3 IS AN ADDRESSABLE INTERFACE DETECTOR THAT IS CONTROLLED BY THE SYSTEM CONTROL PANEL. EACH DETECTOR IS UNIQUELY IDENTIFIABLE AND CAN BE FIELD PROGRAMMED. CALIBRATION, DEVICE IDENTIFICATION AND SENSITIVITY ARE MONITORED BY THE SYSTEM CONTROL PANEL. THE SENSITIVITY IS CONTROLLED BY THE SYSTEM CONTROL PANEL. QUANTITY AS SHOWN ON THE CONTRACT DRAWINGS.

G. THE DUCT TYPE SMOKE DETECTORS SHALL CONSIST OF STANDARD IONIZATION TYPE DETECTOR MOUNTED IN AN AIR SAMPLING TUBELAND. TUBELANDS INCLUDED SHALL BE ALL AIR SAMPLING TUBES OF PROPER SIZE AND LENGTH AS REQUIRED FOR THE DUCT SIZES. TYPE DETECTOR SHALL BE MODEL DI-BX3 AS MANUFACTURED BY THE PYROTRONICS COMPANY. THE DI-BX3 IS AN ADDRESSABLE INTERFACE DETECTOR USED IN AIR DUCT APPLICATIONS THAT IS CONTROLLED BY THE SYSTEM CONTROL PANEL. EACH DETECTOR IS UNIQUELY IDENTIFIABLE AND CAN BE FIELD PROGRAMMED. CALIBRATION, DEVICE IDENTIFICATION AND SENSITIVITY ARE MONITORED BY THE SYSTEM CONTROL PANEL. THE SENSITIVITY IS CONTROLLED BY THE SYSTEM CONTROL PANEL. QUANTITY AS SHOWN ON THE CONTRACT DRAWINGS.

H. AUDIO/VISUAL ALARM STATION SHALL BE PYROTRONICS HS STROBE HORN CAT. NO. HSD-24. QUANTITY AS SHOWN ON THE CONTRACT DRAWINGS

I. ADDRESSABLE MANUAL PULL STATION SHALL BE MODEL NO. MSX-1. THE MSX-1 IS AN ADDRESSABLE INTERFACE MODULE THAT INTERFACES THE MANUAL STATION AND THE ADDRESSABLE ALARMING CIRCUIT. THE MSX-1 IS FIELD PROGRAMMABLE. QUANTITY AS SHOWN ON THE CONTRACT DRAWINGS

J. THE SOLENOID VALVES SHALL BE AS SPECIFIED IN SECTION 15 AND EQUIPPED WITH 24 VDC COIL. QUANTITY AS SHOWN ON THE CONTRACT DRAWINGS

GENERAL

A. THE CONTRACTOR SHALL FURNISH AND INSTALL A ELECTRICALLY SUPERVISED CLASS E SMOKE DETECTION SYSTEM IN ACCORDANCE WITH THE SPECIFICATIONS AND THESE CONTRACT DRAWINGS.

B. ALL EQUIPMENT FURNISHED UNDER THIS CONTRACT SHALL BE MANUFACTURED BY PYROTRONICS AND SHALL BE SYSTEM XL-3 COMPONENTS. NO SUBSTITUTIONS ALLOWED.

C. "THE CONTRACTOR SHALL MAINTAIN A PERMANENT UPDATED FILE FOR ALL SMOKE DETECTION SYSTEM SOFTWARE CONFIGURATIONS AND SYSTEM COMPONENTS AND SHALL DELIVER THIS FILE TO THE ENGINEER UPON RECEIPT OF THE "CERTIFICATE OF FINAL COMPLETION."

2. PRODUCTS

A. THE SYSTEM SHALL CONSIST OF THE FOLLOWING COMPONENTS:

 EIGHT (8) SMOKE DETECTION PANELS, XL Nos. 4 TO 11 AND DETECTION DEVICES WIRED IN ACCORDANCE WITH THE LAYOUT AND SCHEDULE ON THE CONTRACT DRAWINGS.

B. THE SYSTEM SHALL HAVE THE FOLLOWING CAPABILITIES:

 1. THE SYSTEM SHALL BE CAPABLE OF BEING PROGRAMMED IN THE FIELD, BY A NON-COMPUTER TRAINED PERSON, VIA THE SYSTEM PRINTER. ALL PROGRAMMED INFORMATION SHALL BE STORED IN NON-VOLATILE MEMORY.

 2. THE SYSTEM SHALL BE CAPABLE OF OPERATING BOTH ADDRESSABLE IONIZATION THERMAL AND PHOTOELECTRIC DETECTING DEVICES, MANUAL STATIONS AND NON-ADDRESSABLE WATER-FLOW AND TAMPER SWITCHES.

 3. THE SYSTEM SHALL BE ELECTRICALLY SUPERVISED AGAINST A WIRING OPEN OR SHORT CIRCUIT OF ANY CIRCUITRY INVOLVED IN THE SENSING AND OF FIRE AND ALARM SIGNAL. THE OCCURRENCE OF A WIRING OPEN OR SHORT CIRCUIT SHALL CAUSE AN AUDIBLE AND VISUAL TROUBLE SIGNALING IN THE SYSTEM.

 4. EACH SMOKE DETECTION PANEL SHALL HAVE THE ABILITY TO PERFORM MULTIPLE OPERATIONS AT THE SAME TIME. THESE OPERATIONS SHALL INCLUDE BUT NOT BE LIMITED TO TIMED FUNCTIONS AND MULTIPLE CONFIGURED SEQUENCES.

 5. EACH SMOKE DETECTION PANEL SHALL BE CAPABLE OF RECEIVING AND PROCESSING ALARMS EVEN WHEN IN THE SERVICE MODE.

C. ALL MATERIALS, EQUIPMENT, ACCESSORIES, DEVICES AND OTHER FACILITIES AND APPURTENANCES COVERED BY THE SPECIFICATIONS OR AS NOTED ON THE CONTRACT DRAWINGS AND ON THE CONTRACTOR'S APPROVED WORKING DRAWINGS AND INSTALLATION SPECIFICATIONS SHALL BE NEW, BEST SUITED FOR ITS INTENDED USE AND SHALL CONFORM TO APPLICABLE AND RECOGNIZED STANDARDS FOR THEIR USE. ALL EQUIPMENT SHALL BE THE STANDARD CATALOGUED PRODUCTS OF PYROTRONICS AND THEIR RESPECTIVE MANUFACTURERS.

D. EACH SMOKE DETECTION PANEL SHALL BE EQUIPPED WITH THE FOLLOWING:

QUANTITY DESCRIPTION

- 1 DAX-1 DISPLAY ANNUNCIATOR MODULE:
DAX-1 IS THE ANNUNCIATOR AND MANUAL CONTROL MODULE FOR THE SYSTEM XL3 AND PROVIDES THE 32 CHARACTER ALPHANUMERIC DISPLAY, THE POWER, TROUBLE, AND ALARM INDICATORS, TROUBLE/ALARM/CHIME/BELL, 12 KEY KEYPAD, AND 5 COMMAND SWITCHES.
- 2 PSX-3 POWER SUPPLY MODULE (WITH BATTERY CHARGER):
PSX-3 IS A MULTIFUNCTION, SUPERVISED POWER SUPPLY THAT CONVERTS 120 VAC REGULATED 5 VDC AT 3A, REGULATED 24 VDC AT 1.5A AND NON-REGULATED 24 VDC AT 5A (BELL/SIGNAL POWER). THE PSX-3 IS EQUIPPED WITH BATTERY CHARGER CIRCUIT.
- 1 AUXILIARY POWER SUPPLY CONSISTING OF:
 a. ONE(1) PS-35 FULL WAVE RECTIFIER. THE 24 VDC FULL WAVE RECTIFIER IS RATED AT 10 AMP DC FILL LOAD.
 b. ONE(1) BC-35 BATTERY CHARGER TRANSFER MODULE WILL PROVIDE 24 VDC EMERGENCY POWER DURING AN OUTAGE VIA AN AUTOMATIC TRANSFER SWITCH.
 c. ONE(1) BK-33 BATTERY RACK AND BIT 34 BATTERY PACK.
 d. ONE(1) ED-33R POWER SUPPLY ENCLOSURE.
 e. ONE(1) GY-35 INTEGRAL BATTERY.
 f. ONE(1) TC-30W BATTERY TRANSFER MODULE.
- 4 MBX-1 MOTHERBOARD MODULE AND CARD CAGE:
MBX-1 IS THE I/O SLOT CARD CAGE AND MOTHERBOARD INTERCONNECTION MODULE FOR SYSTEM XL3. THE MOTHERBOARD PROVIDES TEN CONNECTION RECEPTACLES FOR XL3 MODULES.) (1) 50 PIN "D" CONNECTOR RECEPTACLE FOR SIGNAL CONNECTION TO THE PSX-2 POWER SUPPLY MODULE.
 (1) 5 PIN CONNECTOR RECEPTACLE FOR RECEIVING POWER FROM THE PSX-1/2 POWER SUPPLY MODULE.
- 1 CPX-1 CENTRAL PROCESSING MODULE:
CPX-1 CONTROLS THE OPERATION AND SUPERVISION OF ALL THE SYSTEM XL3 MODULES AND DETECTS DEVIATIONS, DETERMINES ALARM AND TROUBLE CONDITIONS, CONTROLS THE ANNUNCIATOR DISPLAY AND IS DESIGNED TO INTERFACE WITH A PRINTER.
- 1 MEX-2 MEMORY MODULE:
MEX-2 IS THE 172K BYTE MEMORY FOR THE CPX-1 CENTRAL PROCESSING MODULE AND IS PROGRAMMED BY THE AUTOMATIC CONFIGURATION GENERATOR/CUSTOM SOFTWARE GENERATOR (ACG/CSG).
- 1 MMX-1 MODULE:
THE MMX-1 MODULE MODEM, WHICH IS INSTALLED IN SYSTEM XL3 CARD CAGE, CONTAINS TWO SERIAL PORTS - THE FIRST COMMUNICATES WITH THE XL3, AND THE SECOND COMMUNICATES WITH THE CIL.
- 3 INK-1 ADDRESSABLE INPUTMODULE:
INK-1 IS A 4 LOOP, ADDRESSABLE-DEVICE INPUT SUPERVISORY MODULE. SABLE DEVICES CAN BE MONITORED, EACH DEVICE IS UNIQUELY IDENTIFIABLE.
- 6 SPX-1 PROGRAMMABLE SIGNAL MODULE:
SPX-1 CONTROLS 4 SUPERVISED CONTROL CIRCUITS. ALL 4 CIRCUITS ARE DESIGNED FOR USE WITH DELUGE CONTROL OR ALDIBLE CIRCUIT MAY BE CONNECTED OR USE WITH MANIPULATIE OR LEASED LINE OPERATION.

DRAWING NUMBER

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